

# SEQUENCE LISTING

<110> Charité - Universitätsmedizin Berlin

<120> METHOD OF CELL CULTURE AND METHOD OF TREATMENT COMPRISING A vEPO  
PROTEIN VARIANT

<130> N 1364 PCT BLN

<160> 66

<170> PatentIn version 3.3

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<211> 495  
<212> DNA  
<213> Homo sapiens

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<213> Homo sapiens

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Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
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Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
35 40 45

Ala Glu Asn Ile Thr Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly  
50 55 60

Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu Val  
65 70 75 80

Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala  
85 90 95

Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala  
100 105 110

Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu  
115 120 125

Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser  
130 135 140

Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg  
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Thr Gly Asp Arg

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<213> Homo sapiens

<400> 4

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Ser Leu

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Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu	20	25	30
Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu	35	40	45
Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu	50	55	60
Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg	65	70	75
Met Glu Val Gly Gln Gln Ala Leu Leu Val Asn Ser Ser Gln Pro Trp	85	90	95
Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly Leu Arg Ser	100	105	110
Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser	115	120	125
Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp	130	135	140
Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys	145	150	155
Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp Arg	165	170	

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Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
35 40 45

Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu  
50 55 60

Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Leu Leu Val  
65 70 75 80

Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala  
85 90 95

Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala  
100 105 110

Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu  
115 120 125

Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser  
130 135 140

Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg  
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Thr Gly Asp Arg

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<213> Homo sapiens

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<210> 8

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<213> Homo sapiens

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Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu
1              5              10              15
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Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu
20              25              30
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```
Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu
35              40              45
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```
Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu
50              55              60
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Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg
65              70              75              80
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Met Glu Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser
85              90              95
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Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys
100             105             110
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Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr
115             120             125
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Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe  
 130 135 140

Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly  
 145 150 155 160

Asp Arg

<210> 9  
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 <212> DNA  
 <213> Homo sapiens

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<400> 10

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45

Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu  
 50 55 60

Asn Ile Thr Val Pro Gly Pro Val Gly Gln Leu Phe Pro Ala Val Gly  
 65 70 75 80

Ala Pro Ala Ala Ala Cys Gly  
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<210> 11  
<211> 301  
<212> DNA  
<213> Homo sapiens

<400> 11  
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aggtacctct tggaggccaa ggaggccgag aatatcacga cgggctgtgc tgaacactgc 180  
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<211> 68  
<212> PRT  
<213> Homo sapiens

<400> 12  
Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15  
Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30  
Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
35 40 45  
Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu  
50 55 60

Asn Asn His Cys  
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<210> 13  
<211> 399  
<212> DNA  
<213> Mus musculus

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 gagaaggaat tgatgtcgcc tccagataacc accccacctg ctccactccg aacactcaca 300  
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<210> 14  
 <211> 132  
 <212> PRT  
 <213> Mus musculus

<400> 14

Met Gly Val Pro Glu Arg Pro Thr Leu Leu Leu Leu Leu Ser Leu Leu  
 1 5 10 15

Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile  
 20 25 30

Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala  
 35 40 45

Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn  
 50 55 60

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met  
 65 70 75 80

Glu Lys Glu Leu Met Ser Pro Pro Asp Thr Thr Pro Pro Ala Pro Leu  
 85 90 95

Arg Thr Leu Thr Val Asp Thr Phe Cys Lys Leu Phe Arg Val Tyr Ala  
 100 105 110

Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Val Cys Arg  
 115 120 125

Arg Gly Asp Arg  
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<210> 15  
 <211> 387  
 <212> DNA  
 <213> Mus musculus

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 gaggtctgca ggagagggga caggtga 387

<210> 16  
 <211> 128  
 <212> PRT  
 <213> Mus musculus

<400> 16

Met Gly Val Pro Glu Arg Pro Thr Leu Leu Leu Leu Leu Ser Leu Leu  
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Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile  
20 25 30

Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala  
35 40 45

Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn  
50 55 60

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met  
65 70 75 80

Glu Val Glu Glu Gln Ala Ile Glu Val Trp Gln Gly Leu Ser Leu Leu  
85 90 95

Ser Glu Ala Ile Leu Gln Ala Gln Ala Leu Leu Ala Asn Phe Leu Arg  
100 105 110

Gly Lys Leu Lys Leu Tyr Thr Gly Glu Val Cys Arg Arg Gly Asp Arg  
115 120 125

<210> 17  
 <211> 513  
 <212> DNA  
 <213> Mus musculus

<400> 17  
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<210> 18
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<212> PRT
<213> Mus musculus

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<400> 18

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Met Gly Val Pro Glu Arg Pro Thr Leu Leu Leu Leu Ser Leu Leu
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Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile
          20           25           30

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Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala
          35           40           45

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Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn
          50           55           60

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```

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met
65           70           75           80

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Glu Val Glu Glu Gln Ala Ile Glu Val Trp Gln Gly Leu Ser Leu Leu
          85           90           95

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Ser Glu Ala Ile Leu Gln Ala Gln Ala Leu Leu Ala Asn Ser Ser Gln
          100          105          110

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Pro Pro Glu Thr Leu Gln Leu His Ile Asp Lys Ala Ile Ser Gly Leu
          115          120          125

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Arg Ser Leu Thr Ser Leu Leu Arg Val Leu Gly Ala Gln Lys Glu Leu
          130          135          140

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Met Ser Pro Pro Asp Thr Thr Pro Pro Ala Pro Leu Arg Thr Leu Thr

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145 150 155 160

Val Asp Thr Phe Cys Arg Arg Gly Asp Arg  
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<210> 19  
<211> 279  
<212> DNA  
<213> Mus musculus

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<212> PRT  
<213> Mus musculus

<400> 20

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Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile  
20 25 30

Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala  
35 40 45

Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn  
50 55 60

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Leu Arg Gly Lys Leu Lys  
65 70 75 80

Leu Tyr Thr Gly Glu Val Cys Arg Arg Gly Asp Arg  
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<210> 21  
<211> 591  
<212> DNA  
<213> Mus musculus

<400> 21

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<210> 22
<211> 196
<212> PRT
<213> Mus musculus

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<400> 22

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Met Gly Val Pro Glu Arg Pro Thr Leu Leu Leu Leu Ser Leu Leu
1              5              10              15

```

```

Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile
              20              25              30

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```

Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala
              35              40              45

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Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn
50              55              60

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```

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met
65              70              75              80

```

```

Glu Val Glu Glu Gln Ala Ile Glu Val Trp Gln Gly Leu Ser Leu Leu
              85              90              95

```

```

Ser Glu Ala Val His Gly Arg Gly Leu Gln Glu Arg Gly Gln Val Thr
100              105              110

```

```

Cys Cys Cys His Arg Gly Gly Pro Thr Asn Leu Leu Pro Val Thr Val
115              120              125

```

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Ser Cys Gln Pro Ser Thr Thr Pro Asn Pro His Gln Thr Gly His Tyr

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130

135

140

Leu Leu Thr Ser Leu Ser His Gly His Ser Ser Thr Ser Ser Asp Ile  
 145 150 155 160

Leu Gly Ala Arg Arg Thr Ser Gln Ser Ser Ile Leu Lys Ser Lys Asp  
 165 170 175

Val Ala Gly Gln Ala Arg Gly Pro Arg Glu Glu Glu Pro Gln Asn Gln  
 180 185 190

Leu Gly Phe Val  
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<210> 23  
 <211> 159  
 <212> DNA  
 <213> Homo sapiens

<400> 23  
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<210> 24  
 <211> 53  
 <212> PRT  
 <213> Homo sapiens

<400> 24

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45

Ala Glu Asn Ile Thr  
 50

<210> 25  
 <211> 225  
 <212> DNA  
 <213> Homo sapiens

<400> 25

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<210> 26  
 <211> 82  
 <212> PRT  
 <213> Homo sapiens

<400> 26

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45

Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu  
 50 55 60

Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg  
 65 70 75 80

Met Glu

<210> 27  
 <211> 243  
 <212> DNA  
 <213> Mus musculus

<400> 27  
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 tacatcttag aggccaagga ggcagaaaat gtcacgatgg gttgtgcaga aggtcccaga 180  
 ctgagtgaaa atattacagt ccagataacc aaagtcaact tctatgcttg gaaaagaatg 240  
 gag 243

<210> 28  
 <211> 81  
 <212> PRT  
 <213> Mus musculus

<400> 28

Met Gly Val Pro Glu Arg Pro Thr Leu Leu Leu Leu Ser Leu Leu  
1 5 10 15

Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile  
20 25 30

Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala  
35 40 45

Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn  
50 55 60

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met  
65 70 75 80

Glu

<210> 29

<211> 326

<212> DNA

<213> Mus musculus

<400> 29

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tacatcttag aggccaagga ggcagaaaat gtcacgatgg gttgtgcaga aggtcccaga 180

ctgagtgaaa atattacagt cccagatacc aaagtcaact tctatgcttg gaaaagaatg 240

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ctgcaggccc aggccctgct agccaa 326

<210> 30

<211> 109

<212> PRT

<213> Mus musculus

<400> 30

Met Gly Val Pro Glu Arg Pro Thr Leu Leu Leu Leu Ser Leu Leu  
1 5 10 15

Leu Ile Pro Leu Gly Leu Pro Val Leu Cys Ala Pro Pro Arg Leu Ile  
20 25 30

Cys Asp Ser Arg Val Leu Glu Arg Tyr Ile Leu Glu Ala Lys Glu Ala  
 35 40 45

Glu Asn Val Thr Met Gly Cys Ala Glu Gly Pro Arg Leu Ser Glu Asn  
 50 55 60

Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met  
 65 70 75 80

Glu Val Glu Glu Gln Ala Ile Glu Val Trp Gln Gly Leu Ser Leu Leu  
 85 90 95

Ser Glu Ala Ile Leu Gln Ala Gln Ala Leu Leu Ala Asn  
 100 105

<210> 31  
 <211> 336  
 <212> DNA  
 <213> Homo sapiens

<400> 31  
 gtcgggcagc aggcgcgtaga agtctggcag ggcctggccc tgctgtcgga agctgtcctg 60  
 cggggccagg ccctgttggt caactcttcc cagccgtggg agcccctgca gctgcatgtg 120  
 gataaagccg tcagtggcct tcgcagcctc accactctgc ttcggggtct gggagcccag 180  
 aaggaagcca tctccctcc agatgcggcc tcagctgctc cactccgaac aatcactgct 240  
 gacactttcc gcaaactctt ccgagtctac tccaatttcc tccggggaaa gctgaagctg 300  
 tacacagggg aggcctgcag gacaggggac agatga 336

<210> 32  
 <211> 111  
 <212> PRT  
 <213> Homo sapiens

<400> 32

Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu Leu Ser  
 1 5 10 15

Glu Ala Val Leu Arg Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro  
 20 25 30

Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly Leu Arg  
 35 40 45

Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile  
 50 55 60



Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala  
65 70 75 80

Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly  
85 90 95

Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp Arg  
100 105 110

<210> 33  
<211> 234  
<212> DNA  
<213> Homo sapiens

<400> 33  
cccctgcagc tgcattgtgga taaagccgtc agtggccttc gcagcctcac cactctgctt 60  
cgggctctgg gagcccagaa ggaagccatc tcccctccag atgcggcctc agctgctcca 120  
ctccgaacaa tcaactgtga cactttccgc aaactcttcc gactctactc caatttcctc 180  
cggggaaagc tgaagctgta cacaggggag gcctgcagga caggggacag atga 234

<210> 34  
<211> 80  
<212> PRT  
<213> Homo sapiens

<400> 34

Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly Leu  
1 5 10 15

Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu Ala  
20 25 30

Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile Thr  
35 40 45

Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg  
50 55 60

Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp Arg  
65 70 75 80

<210> 35  
<211> 156  
<212> DNA  
<213> Mus musculus

<400> 35

aaggaattga tgtcgctcc agataccacc ccacctgctc cactccgaac actcacagtg 60  
gatactttct gcaagctctt ccgggtctac gccaaacttc tccgggggaa actgaagctg 120  
tacacgggag aggtctgcag gagaggggac aggtga 156

<210> 36  
<211> 51  
<212> PRT  
<213> Mus musculus

<400> 36

Lys Glu Leu Met Ser Pro Pro Asp Thr Thr Pro Pro Ala Pro Leu Arg  
1 5 10 15

Thr Leu Thr Val Asp Thr Phe Cys Lys Leu Phe Arg Val Tyr Ala Asn  
20 25 30

Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Val Cys Arg Arg  
35 40 45

Gly Asp Arg  
50

<210> 37  
<211> 61  
<212> DNA  
<213> Mus musculus

<400> 37  
cttcctccgg gggaaactga agctgtacac gggagaggtc tgcaggagag gggacaggtg 60  
a 61

<210> 38  
<211> 19  
<212> PRT  
<213> Mus musculus

<400> 38

Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Val Cys Arg Arg  
1 5 10 15

Gly Asp Arg

<210> 39  
<211> 27  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
  
<400> 39  
gaacttccaa ggatgaagac ttgcagc 27

<210> 40  
<211> 23  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
  
<400> 40  
gtggcagcag catgtcacct gtc 23

<210> 41  
<211> 32  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
  
<400> 41  
tatggatcca tgggggtgcc cgaacgtccc ac 32

<210> 42  
<211> 33  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
  
<400> 42  
tatggatcct cacctgtccc ctctcctgca gac 33

<210> 43  
<211> 24  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
  
<400> 43  
gtcgtgactg ggaaaaccct ggcg 24

<210> 44  
<211> 24  
<212> DNA  
<213> Artificial

<220>

<223> PCR primer  
<400> 44  
agcggataac aatttcacac agga 24

<210> 45  
<211> 24  
<212> DNA  
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<220>  
<223> PCR primer  
<400> 45  
gatgggggtg cacgaatgtc ctgc 24

<210> 46  
<211> 25  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
<400> 46  
cacacctggt catctgtccc ctgtc 25

<210> 47  
<211> 33  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
<400> 47  
aaagaattcc ctgtcccctc tcctgcagac etc 33

<210> 48  
<211> 29  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer  
<400> 48  
tatggatcca tgggggtgca cgaatgtcc 29

<210> 49  
<211> 28  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer

<400> 49  
agagaattct ctgtcccctg tcctgcag

28

<210> 50  
<211> 53  
<212> PRT  
<213> Homo sapiens

<400> 50

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
35 40 45

Ala Glu Asn Ile Thr  
50

<210> 51  
<211> 53  
<212> PRT  
<213> artificial

<220>  
<223> Homo sapiens point mutation

<400> 51

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Ala Tyr Leu Leu Glu Ala Lys Glu  
35 40 45

Ala Glu Asn Ile Thr  
50

<210> 52  
<211> 53  
<212> PRT  
<213> artificial

<220>  
<223> Homo sapiens point mutation

<400> 52

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Glu Tyr Leu Leu Glu Ala Lys Glu  
35 40 45

Ala Glu Asn Ile Thr  
50

<210> 53

<211> 43

<212> PRT

<213> artificial

<220>

<223> Homo sapiens ha-10 deletion mutant

<400> 53

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu  
35 40

<210> 54

<211> 33

<212> PRT

<213> artificial

<220>

<223> Homo sapiens hA-20 deletion mutant

<400> 54

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
20 25 30

Ile

<210> 55  
<211> 159  
<212> DNA  
<213> homo sapiens

<400> 55  
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ctgggcctcc cagtccctggg cgtccaccca cgcctcatct gtgacagccg agtcctggag 120  
aggtacctct tggaggccaa ggaggccgag aatatcacg 159

<210> 56  
<211> 159  
<212> DNA  
<213> artificial

<220>  
<223> hAmA (Mutant Alanin hWT-EPO Helix A)

<400> 56  
atgggggtgc acgaatgtcc tgcctggctg tggcttctcc tgtccctgct gtcgctccct 60  
ctgggcctcc cagtccctggg cgtccaccca cgcctcatct gtgacagccg agtcctggag 120  
gcgtacctct tggaggccaa ggaggccgag aatatcacg 159

<210> 57  
<211> 159  
<212> DNA  
<213> artificial

<220>  
<223> hAmE (Mutant Glutamic-Acid hWT-EPO Helix A)

<400> 57  
atgggggtgc acgaatgtcc tgcctggctg tggcttctcc tgtccctgct gtcgctccct 60  
ctgggcctcc cagtccctggg cgtccaccca cgcctcatct gtgacagccg agtcctggag 120  
gagtacctct tggaggccaa ggaggccgag aatatcacg 159

<210> 58  
<211> 129  
<212> DNA  
<213> artificial

<220>  
<223> hA-10 (hWT-EPO Helix A minus 10aa)

<400> 58  
atgggggtgc acgaatgtcc tgcctggctg tggcttctcc tgtccctgct gtcgctccct 60  
ctgggcctcc cagtccctggg cgtccaccca cgcctcatct gtgacagccg agtcctggag 120  
aggtacctc 129

<210> 59  
<211> 99  
<212> DNA  
<213> artificial

<220>  
<223> hA-20 (hWT-EPO Helix A minus 20aa)

<400> 59  
atgggggtgc acgaatgtcc tgcctggctg tggcttctcc tgtccctgct gtcgctccct 60  
ctgggcctcc cagtctggg cgccccacca cgctcatc 99

<210> 60  
<211> 48  
<212> DNA  
<213> homo sapiens

<400> 60  
gccccaccac gcctcatctg tgacagccga gtcctggaga ggtacctc 48

<210> 61  
<211> 16  
<212> PRT  
<213> homo sapiens

<400> 61

Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu  
1 5 10 15

<210> 62  
<211> 27  
<212> PRT  
<213> homo sapiens

<400> 62

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15

Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly  
20 25

<210> 63  
<211> 81  
<212> DNA  
<213> homo sapiens

<400> 63  
atgggggtgc acgaatgtcc tgcctggctg tggcttctcc tgtccctgct gtcgctccct 60  
ctgggcctcc cagtctggg c 81



<210> 64  
 <211> 495  
 <212> DNA  
 <213> Homo sapiens

<400> 64  
 atgggggtgc acgaatgtcc tgcttggtg tggtttctcc tgtccctgct gtcgctccct 60  
 ctgggcctcc cagtcttggg cgtccaccca cgcctcatct gtgacagccg agtcctggag 120  
 aggtacctct tggaggccaa ggaggccgag aatatcacgg tcgggcagca ggccgtagaa 180  
 gtctggcagg gcctggccct gctgtcggaa gctgtcctgc ggggccaggc cctgttggtc 240  
 aactcttccc agccgtggga gccctgcag ctgcatgtgg ataaagccgt cagtggcctt 300  
 cgcagcctca ccactctgct tcgggtctg ggagcccaga aggaagccat ctcccctcca 360  
 gatgaggcct cagctgctcc actccgaaca atcactgctg acactttccg caaactcttc 420  
 cgagtctact ccaatttctt ccggggaaag ctgaagctgt acacagggga ggcctgcagg 480  
 acaggggaca gatga 495

<210> 65  
 <211> 78  
 <212> DNA  
 <213> Homo sapiens

<400> 65  
 gccccaccac gcctcatctg tgacagccga gtcttgagga ggtacctctt ggaggccaag 60  
 gaggccgaga atatcacg 78

<210> 66  
 <211> 26  
 <212> PRT  
 <213> Homo sapiens

<400> 66  
 Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu  
 1 5 10 15  
 Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr  
 20 25